

Amendments to the Claims

Please cancel Claim 1 without prejudice to or disclaimer of the subject matter therein and add new Claims 40-81 as follows.

1-39 (Canceled)

40. (New) A method to determine the immune status of an animal against an infectious agent, said method comprising the steps of:

(a) contacting a biological specimen of said animal with a recombinant antigen capable of forming a complex with an antibody specific for said infectious agent under conditions suitable for formation of said complex, wherein said recombinant antigen is a protein from said infectious agent free of contaminants that result in false positives; and

(b) detecting the presence or absence of said complex, wherein the presence or absence of said complex is indicative of the immune status of said animal.

41. (New) The method of Claim 40, wherein the presence of said complex is indicative of non-susceptibility to infection by said infectious agent.

42. (New) The method of Claim 40, wherein said antibody is selected from the group consisting of a maternally-derived antibody, an antibody generated in response to natural infection by said infectious agent and an antibody generated in response to vaccination against said infectious agent.

43. (New) The method of Claim 40, wherein said biological specimen is selected from the group consisting of blood, serum, plasma, saliva, urine, tears, aqueous humor, cerebrospinal fluid, lymph, nasal secretion, tracheobronchial aspirate, milk, colostrum, intestinal secretion and feces.

44. (New) The method of Claim 40, wherein said animal is selected from the group consisting of a cat, dog and horse.

45. (New) The method of Claim 40, wherein said recombinant antigen is immobilized on a substrate.

46. (New) The method of Claim 40, wherein said method comprises performing an assay selected from the group consisting of an enzyme-linked immunoassay, a radioimmunoassay, a fluorescence immunoassay, a luminescence assay, a phosphorescence assay, an immunoblot assay, an immunodot assay, an immunoprecipitation assay, a lateral flow assay, a flow-through assay, an agglutination assay, a particulate-based assay, and an electronic sensory assay.

47. (New) The method of Claim 40, wherein said step of detecting comprises applying a detection reagent that binds to said complex, if present, to obtain a test signal, wherein presence or absence of a test signal is indicative of the immune status of said animal.

48. (New) The method of Claim 47, wherein said detection reagent comprises an antibody-binding partner conjugated to a detectable marker.

49. (New) The method of Claim 48, wherein said antibody-binding partner is selected from the group consisting of an Fc-binding antibody, an Fc receptor, and an antibody-binding bacterial surface protein.

50. (New) The method of Claim 48, wherein said detectable marker is selected from the group consisting of an enzyme, a radioactive label, a fluorescent label, a luminescent label, a phosphorescent label, a chromophoric label, a metal sol label, a metal-binding label, a physical label, an electronic label, and a ligand.

51. (New) The method of Claim 40, wherein said recombinant antigen further comprises a detectable marker.

52. (New) The method of Claim 40, wherein said method is conducted within about one day.

53. (New) The method of Claim 40, wherein said method is conducted within about one hour.

54. (New) The method of Claim 40, wherein said method is conducted in a time period of between about one minute and about fifteen minutes.

55. (New) The method of Claim 40, wherein said recombinant antigen is selected from the group consisting of a recombinant viral antigen, a recombinant bacterial antigen, a recombinant fungal antigen, a recombinant endoparasite antigen, and a recombinant ectoparasite antigen.

56. (New) The method of Claim 40, wherein said recombinant antigen is a recombinant viral antigen.

57. (New) The method of Claim 40, wherein said recombinant antigen is selected from the group consisting of a calicivirus protein, a distemper virus protein, a herpesvirus protein, a leukemia virus protein, a rabies virus, an adenovirus and a parvovirus protein.

58. (New) The method of Claim 40, wherein said recombinant antigen is a calicivirus protein.

59. (New) The method of Claim 40, wherein said recombinant antigen is a distemper virus protein.

60. (New) The method of Claim 40, wherein said recombinant antigen is a herpesvirus protein.

61. (New) The method of Claim 40, wherein said recombinant antigen is an adenovirus.

62. (New) The method of Claim 40, wherein said recombinant antigen is a parvovirus protein.

63. (New) The method of Claim 40, wherein said recombinant antigen is selected from the group consisting of a feline calicivirus capsid protein, a feline herpesvirus glycoprotein B protein, a feline herpesvirus glycoprotein C protein, a feline herpesvirus glycoprotein D protein, a feline parvovirus VP12 protein, a feline parvovirus VP2 protein, a feline leukemia virus p27 protein, a feline leukemia virus gp70 protein, a feline leukemia virus p27-gp70 fusion protein, a canine distemper virus fusion protein, a canine adenovirus protein, and a canine distemper virus hemagglutinin protein.

64. (New) The method of Claim 40, wherein said recombinant antigen is selected from the group consisting of PFCVCP₆₇₁, PFCVCP₅₄₇, PFPVVP2₅₈₄, PFPVVP2C₂₄₃, PFPVpVP12₆₂₀, PFPVpVP2₄₇₇, PFHVgB₉₄₃, PFHVgB₂₅₀, PFHVgC₅₃₄, PFHVgC₄₆₇, PFHVgC_{467(opt)}, PFHVgD₃₇₄, PFHVgD₃₀₀, PFeLVp27₂₅₃, PFeLVp27₆₁₉, PFeLVp27-gp70₆₁₁, PCDVH₆₀₄, PCDVF₆₆₂, PHis-PFCVCP₆₇₁, PHis-PFCVCP₅₄₇, PHis-PFPVVP2₅₈₄, PHis-PFPVVP2C₂₄₃, PHis-PFPVpVP12₆₂₀, PHis-PFPVpVP2₄₇₇, PHis-PFHVgB₉₄₃, PHis-PFHVgB₂₅₀, PHis-PFHVgC₅₃₄, PHis-PFHVgC₄₆₇, PHis-PFHVgC_{467(opt)}, PHis-PFHVgD₃₇₄, PHis-PFHVgD₃₀₀, PHis-PFeLVp27₂₅₃, PHis-PFeLVp27₆₁₉, PHis-PFeLVp27-gp70₆₁₁, PHis-PCDVH₆₀₄, and PHis-PCDVF₆₆₂.

65. (New) The method of Claim 40, wherein said recombinant antigen comprises an amino acid sequence having at least 85% identity with an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:34 and SEQ ID NO:36.

66. (New) The method of Claim 65, wherein said recombinant antigen comprises an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:24, SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:34 and SEQ ID NO:36.

67. (New) The method of Claim 40, wherein said recombinant antigen is encoded by a nucleic acid sequence having at least about 85% identity with a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:33, and SEQ ID NO:35.

68. (New) The method of Claim 40, wherein said recombinant antigen is encoded by a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:33, and SEQ ID NO:35.

69. (New) The method of Claim 40, wherein said biological specimen is contacted with a recombinant calicivirus antigen, a recombinant herpesvirus antigen and a recombinant parvovirus antigen under conditions such that the immune status of said animal to calicivirus, herpesvirus and parvovirus infection is determined.

70. (New) The method of Claim 40, wherein said biological specimen is contacted with a recombinant parvovirus protein, a recombinant distemper virus protein and a recombinant adenovirus protein under conditions such that the immune status of said animal to parvovirus, distemper virus and adenovirus infection is determined.

71. (New) A method to determine the immune status of a pre-vaccinated animal, said method comprising:

(a) obtaining a biological specimen from an animal that had been vaccinated at least six (6) months prior to obtaining said biological specimen;

(b) contacting said biological specimen with a recombinant antigen capable of forming a complex with an antibody specific for said infectious agent under conditions suitable for formation of said complex, wherein said recombinant antigen is a protein from said infectious agent; and

(c) detecting the presence or absence of said complex, wherein the presence or absence of said complex is indicative of the immune status of said animal.

72. (New) The method of Claim 71, wherein said animal has been vaccinated at least one year prior to obtaining said biological specimen.

73. (New) The method of Claim 71, wherein said animal has been vaccinated at least two years prior to obtaining said biological specimen.

74. (New) The method of Claim 71, wherein said animal has been vaccinated at least three years prior to obtaining a biological specimen.

75. (New) A method to determine the immune status of an animal against an infectious agent, said method comprising the steps of:

(a) contacting a biological specimen of said animal with a recombinant antigen capable for forming a complex with an antibody specific for said infectious agent under conditions suitable for formation of said complex;

(b) applying a detection reagent capable of binding to said complex to produce a test signal and a reference reagent to produce a reference signal;

(c) detecting the test signal and the reference signal; and

(d) comparing the intensity of the test signal with the intensity of the reference signal to determine the immune status of said animal, wherein a more intense test signal compared to the reference signal indicates the animal is not susceptible to infection by said infectious agent.

76. (New) A method to determine whether a human should be treated for rabies infection, said method comprising:

(a) obtaining a biological specimen from an animal suspected of having exposed the human to rabies virus infection;

(b) contacting said biological specimen with a recombinant rabies virus protein capable of forming a complex with an antibody specific for rabies virus under conditions suitable for formation of said complex; and

(c) detecting the presence or absence of said complex, wherein the presence of said complex indicates the human should be treated for rabies infection.

77. (New) A kit for determining the immune status of an animal, said kit comprising:

(a) a recombinant infectious agent antigen that is specific for detecting an antibody selective for said infectious agent; and

(b) a means to detect an antibody that selectively binds to said recombinant antigen.

78. (New) The kit of Claim 77, wherein said means comprises a detection reagent.
79. (New) The kit of Claim 78, wherein said kit further comprises:
- (a) a solid support comprising a test area and a reference area; and
 - (b) a reference reagent.
80. (New) The kit of Claim 79, wherein said test area comprises said recombinant antigen.
81. (New) The kit of Claim 55, wherein said kit further comprises a control area for assay validation.